Claim Set as Amended

Claims 1-3. (Canceled)

~~4~~. (Currently Amended) A filtering control method for improving the image quality of a bi-linear interpolated image when recovering a high resolution image from a low resolution image, comprising:

restoring a requested high resolution image f by finding an added filter coefficient Q of a PSF(P) and a bi-linear interpolation filter B from an equation f=Pg=PBz=Qz, wherein f is the high resolution image as requested, P is the PSF (Point Spread Function), g is the high resolution image found by the bi-linear interpolation method, and z is the low resolution image;

wherein the high resolution image f can be restored by performing an added function M(f) definition process for finding the PSF(H) from an equation g = Bz = Hf+n, wherein B, H are bi-linear interpolation filters, and n is a noise component generated by the assumed H; and

~~The filtering control method for improving the image quality of the bi-linear interpolated image according to claim 2~~, wherein the added function M(f) is defined as $M(f)= \left\| g - Hf \right\|^2 + \alpha \left\| Cf \right\|^2$, wherein α is a regularization parameter, and C is a two-dimensional high frequency filter for finding mitigation of the original image.

4 ~~5~~. (Currently Amended) A filtering control method for improving the image quality of a bi-linear interpolated image when recovering a high resolution image from a low resolution image, comprising:

restoring a requested high resolution image f by finding an added filter coefficient Q of a PSF(P) and a bi-linear interpolation filter B from an equation f=Pg=PBz=Qz, wherein f is the high resolution image as requested, P is the PSF (Point Spread Function), g is the high resolution image found by the bi-linear interpolation method, and z is the low resolution image;

wherein the high resolution image f can be restored by performing an added function M(f) definition process for finding the PSF(H) from an equation g = Bz = Hf+n, wherein B, H are bi-linear interpolation filters, and n is a noise component generated by the assumed H;

wherein the high resolution image f is restored by finding a PSF(P) of a f=Pg function after finding the PSF(H) from the added function M(f); and

~~The filtering control method for improving the image quality of the bi-linear interpolated image according to claim 3,~~ wherein the PSF(H) is found by using an equation $H(k,l) = \dfrac{G(k,l)}{F(k,l)}$, $G(k,l)$ is the component in the k,l frequency region of the bi-linear interpolated image, and $F(k,l)$ is the component in the k,l frequency region of the high resolution image.

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6. (~~Previously Presented~~) ~~A filtering control method for improving the image quality of a bi-linear interpolated image when recovering a high resolution image from a low resolution image, comprising:~~

~~restoring a requested high resolution image f by finding an added filter coefficient Q of a PSF(P) and a bi-linear interpolation filter B from an equation f=Pg=PBz=Qz, wherein f is the high resolution image as requested, P is the PSF (Point Spread Function), g is the high resolution image found by the bi-linear interpolation method, and z is the low resolution image; and~~

~~The filtering control method for improving the image quality of the bi-linear interpolated image according to claim 1,~~ wherein the PSF(P) can be found by getting an IFT (Inverse Fourier Transform) by an equation

$$P(k,l) = \frac{H*(k,l)}{H*(k,l)H(k,l) + C*(k,l)C(k,l)}.$$

7. (Original) The filtering control method for improving the image quality of the bi-linear interpolated image according to claim 4, wherein the regularization parameter α is fixed as '1' in order to reduce a computational complexity.

8. (Canceled)

3 9. (Original) The filtering control method for improving image quality of the b-linear interpolated image according to claim 4, wherein a two-dimensional gaussian filter is used as the two-dimensional high frequency filer C in order to determine the mitigation of the original image.

10. (Canceled)

11. (Currently Amended) A filtering control method for improving image quality of a bi-linear interpolated image in methods for getting a high resolution image from a low resolution image, comprising:

defining an added function M(f) for finding a PSF(H) from an equation g=Bz=Hf+n (wherein B, H are bi-linear filters, n is a noise component generated by an assumed H when the H is a PSF (Point Spread Function), f is a requested high resolution image, z is a low resolution image, and g is a high resolution image gotten by the bi-linear interpolation method);

finding a PSF(P) of a f=Pg function after finding the PSF(H) from the defined added function M(f); and

restoring the requested high resolution image f by finding an added filter coefficient Q of the PSF(P) and interpolation filter B from the equation f=Pg=PBz=Qz;

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~~The filtering control method for improving the image quality of the bi-linear~~ ~~interpolated image according to claim 10,~~ wherein the added function M(f) is defined as $M(f) = \left\| g - Hf \right\|^2 + \alpha \left\| Cf \right\|^2$, wherein α is a regularization parameter, and C is a two-dimensional high frequency filter for finding the mitigation of the original image.

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~~12~~. ~~(Previously Presented)~~ A filtering control method for improving image quality of a bi-linear interpolated image in methods for getting a high resolution image from a low resolution image, comprising:

defining an added function M(f) for finding a PSF(H) from an equation g=Bz=Hf+n (wherein B, H are bi-linear filters, n is a noise component generated by an assumed H when the H is a PSF (Point Spread Function), f is a requested high resolution image, z is a low resolution image, and g is a high resolution image gotten by the bi-linear interpolation method);

finding a PSF(P) of a f=Pg function after finding the PSF(H) from the defined added function M(f); and

restoring the requested high resolution image f by finding an added filter coefficient Q of the PSF(P) and interpolation filter B from the equation f=Pg=PBz=Qz;

~~The filtering control method for improving the image quality of the bi-linear~~ ~~interpolated image according to claim 10,~~ wherein the PSF(H) is found by an equation $H(k,l) = \dfrac{G(k,l)}{F(k,l)}$, wherein $G(k,l)$ is the component in the k,l frequency region of the bi-linear interpolated image, and $F(k,l)$ is the component in the k,l frequency region of the high resolution image.

13. (~~Previously Presented~~) A filtering control method for improving image quality of a bi-linear interpolated image in methods for getting a high resolution image from a low resolution image, comprising:

defining an added function M(f) for finding a PSF(H) from an equation g=Bz=Hf+n (wherein B, H are bi-linear filters, n is a noise component generated by an assumed H when the H is a PSF (Point Spread Function), f is a requested high resolution image, z is a low resolution image, and g is a high resolution image gotten by the bi-linear interpolation method);

finding a PSF(P) of a f=Pg function after finding the PSF(H) from the defined added function M(f); and

restoring the requested high resolution image f by finding an added filter coefficient Q of the PSF(P) and interpolation filter B from the equation f=Pg=PBz=Qz;

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~~The filtering control method for improving the image quality of the bi-linear interpolated image according to claim 10,~~ wherein the PSF(P) is found by using an IFT (Inverse Fourier Transform) by an equation

$$P(k,l) = \frac{H*(k,l)}{H*(k,l)H(k,l) + C*(k,l)C(k,l)}.$$

14. (Original) The filtering control method for improving the image quality of the bi-linear interpolated image according to claim 11, wherein the regularization parameter α is fixed as '1' in order to reduce a computational complexity.

15. (Canceled)

16. (Original) The filtering control method for improving image quality of the bi-linear interpolated image according to claim 11, wherein a two-dimensional gaussian filter is used as the two-dimensional high frequency filter C in order to determine the mitigation of the original image.

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17. (Currently Amended) The filtering control method for improving the image quality of the bi-linear interpolated image according to claim 6, ~~wherein~~ the number of a kernal of the PSF(P) is set in accordance with an up-sampling value of the image.

18. (Currently Amended) The filtering control method for improving the image quality of the bi-linear interpolated image according to claim 13, ~~wherein~~ the number of a kernal of the PSF(P) is differently set in accordance with an up-sampling value of the image.